

# Beam Cerenkovs and Instrumentation

Holger Meyer, Fermilab

- Installation status
  - Heads/mirrors, pipes
  - Instrumentation
- Gas system
  - Prototype test
- Beam Particle ID
  - Cerenkov vs. beam tof

- Installation status
  - Heads mounted on concrete blocks, mirrors mounted in heads, pipes attached to heads.
    - Pipes are painted black inside
  - Mirror controls will be installed soon (Acnet)
  - Gas system installed on prototype in MTEST
    - Move to MC7
    - Duplicate for 2<sup>nd</sup> Ckov
    - Vacuum pumps refurbished and in MC7
  - Go out to MC7 and take a look!



- Gas system for beam Ckvs:
  - Operate at 0 to 1 atm, go up and down at random
    - Measure  $p$  and  $T$ , calculate  $\rho$  (and thus  $n$ ) in APACS
    - Don't need to wait for equilibrium
    - Insert gas through multiple ports into vessel to avoid temperature gradient
    - Control to better than 1% in test setup
- Beam particle ID:
  - Lots of discussion recently
    - Beam pid needed in analysis of data and for trigger prescales
  - Ckov covers almost all
    - $K$  and  $p$  cannot be detected at low momenta
    - Use beam tof offline and online
    - Beam tof cannot cover high momenta
  - Details are on the web

# Gas system issues

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- Completed
  - Lots of things
- To be done
  - Lots of other things
- Terry Tope's list of things we don't have
  - Dollars and technicians

- Gas tasks completed:
  - MTEST setup for beam Ckov
  - Nitrogen dewar for purges on chambers, RICH dry out
  - TPC rack
  - DC4 Ar/Ethane
  - Exhaust tubing for DC1-4
  - One bottle rack in gas shed
- Gas tasks not yet complete:
  - Exhausts for TPC, MWPCs, EMcal
  - Beam chambers
  - O2 sensor on RICH
  - ...
- What we need
  - Filters (\$1000)
  - Calibration of mass flow meters
  - Low pressure sensors for beam Ckov (\$600)
  - Physicists to change gas bottles and monitor usage, gas log
  - More hands (BD permanently took 2 techs, but one coming from CDMS during shutdown)